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A New Species of the Terrestrial Isopod Genus *Spherillo* (Crustacea: Isopoda: Armadillidae) from Kii Peninsula, Japan*

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紀伊半島から発見されたコシビロダンゴムシ属（甲殻亜門：等脚目：コシビロダンゴムシ科）の1新種

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山本未基氏が紀伊半島中部の和歌山県南部町の海岸から発見したコシビロダンゴムシ科の1種を、新種 *Spherillo ishidai*（和名：イシダコシビロダンゴムシ、新称）として記載した。本種はトウキョウコシビロダンゴムシ *Spherillo obscurus* (Budde-Lund, 1885) と最も類似するが、背面に非常に鮮やかな色彩のパターンを持つこと、オスの第１腹肢内肢先端付近に16-17本とより多くの小棘を持つこと、およびその外肢に凹みがないことなどにより区別される。

キーワード：等脚目、コシビロダンゴムシ科、新種、イシダコシビロダンゴムシ、日本
Key words：Isopoda, Armadillidae, new species, *Spherillo ishidai,* Japan

The genus *Spherillo* is characterized by deep schisma on ventral sides of epimera of pereonal somite 1, pereonal somite 2 with an oblique tooth-like lobe on its ventral side, frontal lamina of cephalon only slightly protruding over vertex, pseudotracheae on pleopods with a single opening, and our-grass-shaped pleotelson. Hitherto, 84 species from all over the world (Schmalfuss, 2003) and 15 species of the genus *Spherillo* have been recorded in Japan (Iwamoto, 1943, Nunomura, 1990, 1991, 1992, 2003a, 2003b, 2007, 2009).

Recently, Mr. Miki Ishida had happened to collected terrestrial isopods having very clear color pattern on dorsal surface of dorsal surfaces at maritime area of Nishi-iwashiro, Minabe-cho, Wakayama Prefecture, west part of Kii Peninsula. These specimens were submitted to the author for identification by the courtesy of Dr. Mark J. Grygier of the Lake Biwa Museum. As the result of my examination, it proved to represent a new species of the genus *Spherillo.*

The type material is deposited in Lake Biwa Museum (LBM), National Museum of Nature and Science, Tokyo (NSMT), Toyama Science Museum, Toyama (TOYA) Kitakyushu Museum of Natural History and Human History and Kitakyushu (KMNH) and Osaka Museum of Natural History, Osaka (OMNH).

It is very difficult to measure the body length, because these animals become curled up in a ball and breaks easily; therefore, I refrained from measuring the body length, except of holotype, largest and smallest individuals of both sexes.

Taxonomy

Spherillo ishidai n. sp.

(New Japanese name: Ishida-koshibiro-dangomushi)

(Figs.1- 2)

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*Contributions from the Toyama Science Museum, No.408

Material examined. Holotype: male (BL 5.6 mm), LBM 1430004936, Nishi-iwashiro, Minabe-cho, Wakayama Prefecture, eastern part of Kii Peninsula.1, Mar. 2010, coll. Miki Ishida. Allotype: female (BL 6.6 mm), same data as holotype. Paratypes: 9 males, (BL 3.8-6.0 mm) 14 females (up to 6.5mm), same data as holotype; 5 males (3.5-6.0mm), 12 females (4.9～7.6mm in body length), same locality, 10 January 2010, coll. Miki Ishida.

Type series is deposited as follows: holotype (LBM 1430004936), allotype (LBM 1430004937) and 20 paratypes (LBM 1430004938～1430004943) at Lake Biwa Museum and , 5 paratypes (TOYA Cr- 23274～23278) at Toyama Science Museum, 5 paratypes (NSMT Cr-21256) at the National Museum of Nature and Science Tokyo, 5 paratypes (OMNH Ar- 8373) at the Osaka Museum of Natural History, and 5 paratypes (KMNH IVR-500,498～500,502) at the Kitakyushu Museum of Natural History and History.

Description. Male. Body (Fig. 1A) 2.0 times as long as greatest width, lateral margin sub-parallel, widest at pereonites 6. Eyes moderately large, each with 15-16 ommatidea. Color yellow, and all the pereonal somites with 6 rows of black markings. Basis to carpus of each pereopod with medial part darkly colored. Male slightly darker than female; coxal plate 1 (Fig.1C) with a pair of deep schisma on the hind-lateral corner; coxal plates 2 with a small lobe. Pleotelson (Fig. 2K) hour-grass-shaped.

Antennule (Fig. 1D) 3-segmented, terminal segment slender, with 5-6 aesthetascs on lateral margin near tip. Antenna (Fig. 1E) reaching posterior margin of pereonites 1 when extended posteriorly. Flagellum 2-segmented and 0.8 times as long as fifth peduncular segment, terminal flagellar segment 3.0 times longer than basal one.

Right mandible (Fig. 1F) with incisor process bearing 3 cusps; lacinia mobilis with 3 cusps; molar process reduced to plumose seta. Left mandible (Fig. 1G) with incisor process bearing 3 cusps; lacinia mobilis with 2 cusps; molar process represented a plumose seta. Maxillula (Fig.1H) with mesial endite bearing 2 plumose setae on rounded apical margin; lateral endite with 10 simple setae. Maxilla (Fig. 1I) apically bilobed; inner lobe with relatively narrow field of sensilla. Maxilliped (Fig. 1J) with endite rectangular, bearing 4 spurs on distal margin; palpal segment 1 rectangular, distal segments with 2 setae on inner margin and a group of setae at apex.

Pereopod 1 (Fig. 1K) with basis 3.5 times as long as wide, bearing 7-10 setae on inner and outer margins; ischium 0.6 times as long as basis, with 6-7 setae on inner margin and 1 seta on outer distal angle; merus 0.6 times as long as ischium, with 13-14 setae on inner margin and 3 setae on outer distal angle; carpus 1.6 times as long as wide, with many setae on inner margin and lateral surface, and 4-5 setae on outer margin; propodus as long as carpus, with about 10 shorter setae on basal half and 4 longer setae on distal half of inner margin.

Pereopod 2 (Fig. 1L) with basis 3.5 times as long as wide, bearing 3-4 setae on inner margin and 6-7 setae on outer margin; ischium about 0.4 times as long as basis; merus as long as ischium, with 8 setae on inner margin and 1 seta at outer distal angle; carpus 1.3 times longer than merus, with more than 20 relatively long setae on inner margin and many short setae on lateral surface; propodus 0.9 times as long as carpus, with 7-9 setae on inner margin and 11-12 setae on outer margin.

Pereopod 3 (Fig. 1M) with basis 3.3 times as long as wide; ischium about 0.4 times as long as basis, with 2 relatively short setae on inner margin and 1 seta at outer distal angle; merus a little shorter than ischium, with 6-7 relatively short setae on inner margin and 1 seta at outer distal angle; carpus a little shorter than merus, with 9-10 setae on inner margin; propodus as long as carpus, with 4-5 setae on inner margin.

Pereopod 4 (Fig. 1N) with basis 3.0 times as long as wide, bearing 7-8 setae on inner margin and 11 setae on outer margin; ischium 0.4 times as long as basis, with 3-4 setae on inner margin and 1 seta on sternal margin; merus 0.7 time as long as ischium, with 7 setae on inner margin and 2-3setae on sternal margin; carpus 1.5 time longer than merus, with 12 setae on inner margin including 1 longer bifurcated seta on inner margin and 4-5 short setae on outer margin; propodus slightly longer than carpus, with 7-8 setae on both margins.

Pereopod 5 (Fig. 1O) with basis 3.8 times longer than wide, with 8-10 setae on inner margin; ischium half length of basis, with 5-6 setae on inner margin and 2 setae on outer margin; merus 0.7 times as long as wide, with 5-6 setae on inner margin and 2 setae on outer margin; carpus 1.7 times longer than merus, with 7-8 setae on inner margin and 4-5 setae on outer margin; propodus slightly shorter than carpus, with 9-11 setae on both margins.

Pereopod 6 (Fig.1P) with basis, 3.7 times as long as wide, bearing 9-10 setae on inner margin; ischium 0.45 times long as basis, with 2-3 setae on doroso-lateral margin; merus 0.8 times as long as ischium, with 4-5 setae on inner margin; carpus 1.3 times longer than merus, with relatively large 7-8 setae and several relatively smaller setae on inner

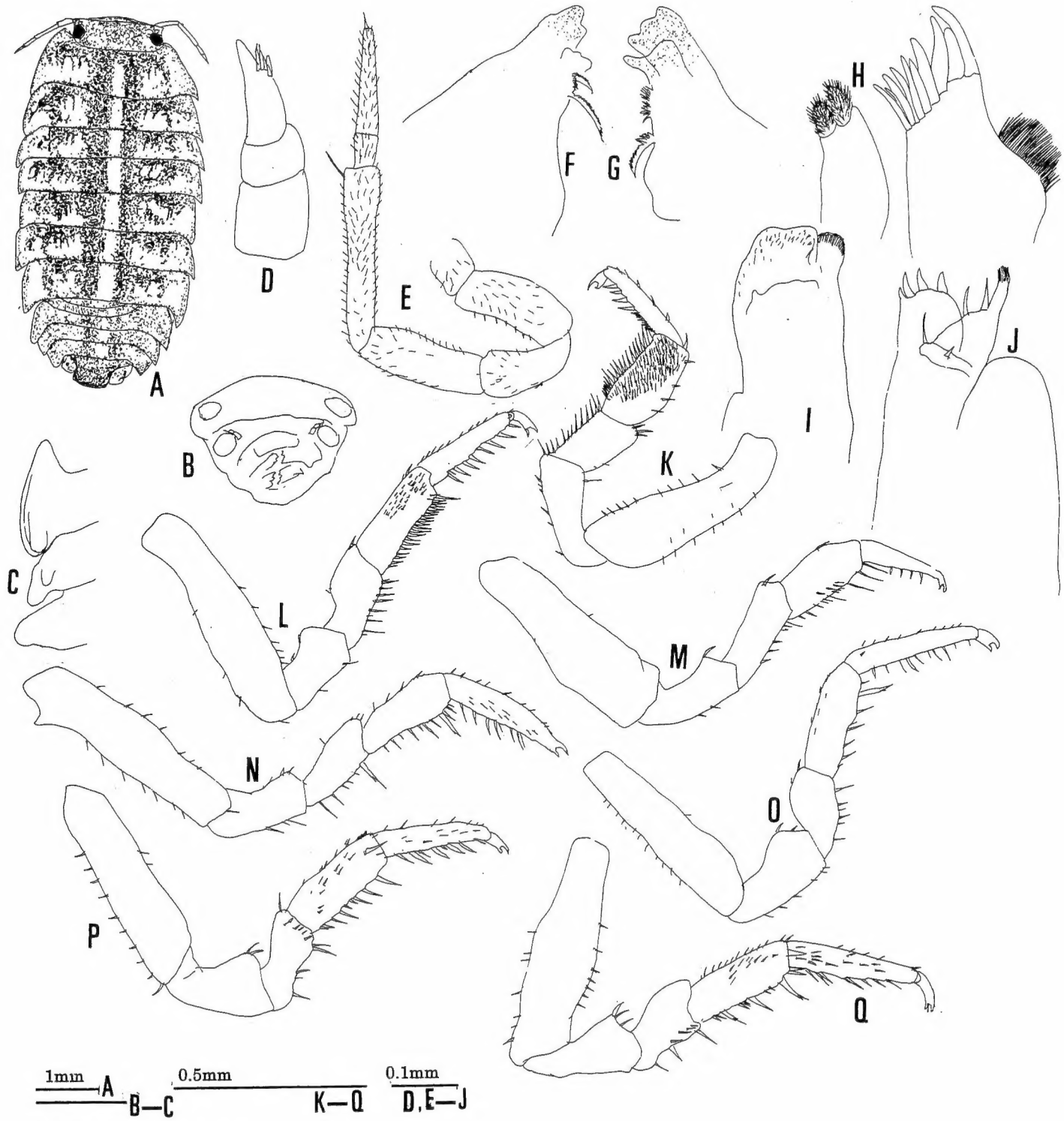

Fig.1 *Spherillo ishidai* n.sp.

Holotype, male, LBM 1430004936. A, habitus, dorsal view, B, cephalon, frontal view; C, pereonites 1-3, ventral view; D, right antennule, caudal view; E, right antenna, caudal view; F, right mandible, caudal view; G, left mandible, caudal view; H, left maxillula, caudal view; I, left maxilla, caudal view; J, left maxilliped, caudal view; K, right pereopod 1-7 frontal, L-Q, left pereopods 2-7, frontal view (All: holotype male).

margin; propodus almost as long as carpus, with 7-8 setae on inner margins and on outer margin.

Pereopod 7 (Fig. 1Q) with basis 3.1 times longer than wide, bearing 7-8 setae on both margins; ischium about 0.6 times as long as basis, with 2-3 setae on outer sternal margin; merus 0.6 times as long as ischium, with 3 relatively strong setae on inner margin; carpus 1.5 times longer than merus, with 3 relatively strong and several weak setae including 2 trifurcated one on inner margin, and 3-4 simple setae on distal margin; propodus 1.2 times longer than carpus, with 8 setae on inner margin.

Penes (Fig. 2A) fusiform, 3.6 times longer than wide.

Pleopod 1 (Fig. 2A) with endopod straight, apical area only slightly recurved outward, bearing 16-17 denticles distally; exopod rectangular, 0.5 times as long as wide and its outer margin only shallowly concaved.

Pleopod 2 (Fig. 2C) with endopod slender, tapering to tip exceeds 13% of exopal length; exopod triangular, with sinuate outer margin.

Pleopod 3 with endopod (Fig. 2E) trianglar, with 4 setae; exopod (Fig. 2F) trapezoidal.

Pleopod 4 with endopod rectangular; exopod (Fig. 2G) trapezoidal, bearing 8 setae.

Pleopod 5 with endopod (Fig.2H) pentagonal; exopod (Fig. 2 I) rectangular, with 5-7 setae on outer margin and with a transverse row of pectinated scales and along row of fine setae on distal part near outer margin.

Uropod (Fig. 2J) with endopod rectangular; exopod small, with 2-3 setae at tip.

Female: Generally similar to male except for trapezoidal endopods of pleopods 1 and 2 (Fig. 2B, D).

Etymology. The species name is dedicated to Mr. Miki Ishida, the collector the specimens.

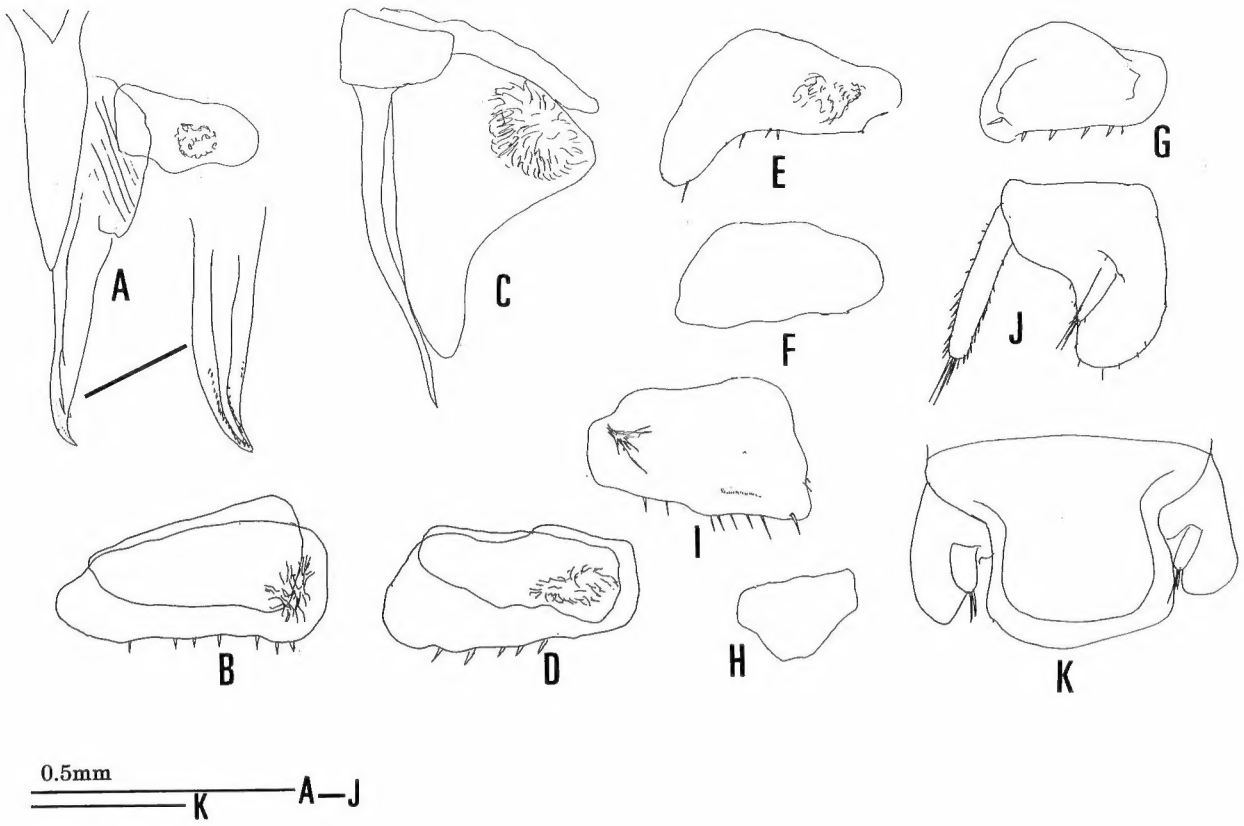

Fig.2 ***Spherillo ishidai,*** **n.sp.**

A, Penes and pleopod 1 in male, caudal view; B, pleopod 1 in female, caudal view; C, pleopod 2 in male. D, pleopod 2 in female, caudal view; E endopod of left pleopod 3, caudal view; F, exopod of the same, caudal view; G ,exopod of left pleopod 4, caudal view ; H, endopod of pleopod 5, caudal view; I, exopod of the same, caudal view; J, Uropod. K, Pleotelson and uropod, dorsal view. (A, C, E-K, holotype male; B and D paratype female).

Remarks. The present new species is most closely allied to *Spherillo obscurus* (Budde-Lund, 1885) in having relatively short hour-grass shaped pleotelson, deep schisma and rectangular exopod of male first pleopod. The present new species is distinguished from the latter in more distinct color pattern on dorsal tergite than *obscurus.* The former has more than 16-17 denticles of endopod of male first pleopod, whereas 10 in *obscurus.* The outer margin of the present new species only shallowly concaved, but deeply in *obscurus.*

The present new species is also allied to *S. dorsalis* (Iwamoto, 1943) known from widely distributed in central Japan in having relatively short hour-grass shaped pleotelson and deep schisma. The new species has clearer color patterns on dorsal surface of pereonites, while almost black in *dorsalis.* Exopod of male first pleopod of the present new species is rectangular, while it is triangular in *dorsalis.* The present new species has obviously shorter teeth of maxillula; average length of teeth to the width is, whereas in *dorsalis.* The former has more than 16-17 denticles of endopod of male first pleopod, whereas 6 in *dorsalis.*

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